

What is claimed is:

- 1 1. A resonant circuit structure comprising:
2 a load;
3 a primary component coupled to a node;
4 a secondary component array coupled to the node, in parallel to the primary
5 component; and
6 a reduction system, intercoupled between the load and the node, and adapted to
7 reduce to operational voltage at the node to a target value.
- 1 2. The structure of claim 1, wherein the resonant circuit structure comprises an inductive
2 load and a capacitance coupled in series.
- 1 3. The structure of claim 1, wherein the load comprises an antenna.
- 1 4. The structure of claim 1, wherein the primary component comprises a capacitive
2 element.
- 1 5. The structure of claim 4, wherein the capacitive element is a capacitor.
- 1 6. The structure of claim 4, wherein the secondary component array comprises a
2 capacitive element.
- 1 7. The structure of claim 6, wherein the capacitive element is a capacitor.

1 8. The structure of claim 6, wherein the secondary component array comprises a
2 switchable element.

1 9. The structure of claim 8, wherein the switchable element is a transistor.

1 10. A circuitry segment, implementing an RLC resonant circuit structure utilizing
2 integrated and discrete devices, the circuitry segment comprising:

3 a driver circuit, instantiated within a first integrated semiconductor device;

4 a primary resistive element, having a first terminal coupled the driver circuit, and a
5 second terminal coupled to a first terminal of an inductive load;

6 a reduction system, having a first terminal coupled to a second terminal of the
7 inductive load, and having a second terminal coupled to a node;

8 a primary capacitive element, having a first terminal coupled to the node; and

9 a secondary component array coupled to the node, in parallel to the primary
10 capacitive element;

11 wherein the reduction system is adapted to reduce to operational voltage at the node
12 to a target value.

1 11. The circuitry segment of claim 10, wherein the RLC resonant circuit structure is a
2 low frequency resonant circuit.

1 12. The circuitry segment of claim 10, wherein the RLC resonant circuit structure is a
2 radio frequency resonant circuit.

1 13. The circuitry segment of claim 10, wherein the primary resistive element is a resistor.

- 1 14. The circuitry segment of claim 13, wherein the resistor is a discrete component.
- 1 15. The circuitry segment of claim 10, wherein the inductive load is an antenna.
- 1 16. The circuitry segment of claim 15, wherein the antenna is for a base transceiver in a
2 wireless communication system.
- 1 17. The circuitry segment of claim 10, wherein the primary capacitive element comprises
2 a capacitor.
- 1 18. The circuitry segment of claim 10, wherein the primary capacitive element comprises
2 a plurality of capacitors.
- 1 19. The circuitry segment of claim 17, wherein the capacitor is a discrete component.
- 1 20. The circuitry segment of claim 17, wherein the capacitor is integrated within a
2 semiconductor device.
- 1 21. The circuitry segment of claim 10, wherein the secondary component array comprises
2 a capacitor.
- 1 22. The circuitry segment of claim 10, wherein the secondary component array comprises
2 a switchable element.
- 1 23. The circuitry segment of claim 22, wherein the switchable element comprises a
2 transistor.
- 1 24. The circuitry segment of claim 21, wherein the capacitor is a discrete component.

1 25. The circuitry segment of claim 21, wherein the capacitor is integrated within a
2 semiconductor device.

1 26. The circuitry segment of claim 23, wherein the transistor is integrated within a
2 semiconductor device.

1 27. The circuitry segment of claim 10, wherein the reduction system comprises a
2 capacitor.

1 28. The circuitry segment of claim 10, wherein the reduction system comprises a plurality
2 of capacitors.

1 29. The circuitry segment of claim 27, wherein the capacitor is a discrete component.

1 30. The circuitry segment of claim 27, wherein the capacitor is integrated within a
2 semiconductor device.

1 31. A method of producing a tunable resonant circuit, having integrated and discrete
2 devices, the method comprising the steps of:

3 providing a driver circuit instantiated within a first integrated semiconductor device;

4 providing a primary resistor, having a first terminal coupled the driver circuit, and a
5 second terminal coupled to a first terminal of an inductive load;

6 providing a primary capacitor, having a first terminal coupled to a node;

7 providing a secondary capacitor having a first terminal coupled to the node;

8 providing a transistor having a first terminal coupled to a second terminal of the

9 secondary capacitor, and a second terminal coupled to ground; and
10 providing a reduction system, having one or more intercoupled capacitors, a first
11 terminal of which is coupled to a second terminal of the inductive load, and a second
12 terminal of which coupled to the node, adapted to reduce to operational voltage at the node to
13 a target value.

1 32. The method of claim 31, wherein the step of providing a transistor further comprises
2 providing a transistor instantiated within an integrated semiconductor device.

1 33. The method of claim 32, wherein the step of providing a transistor further comprises
2 providing a transistor instantiated within the first integrated semiconductor device.

1 34. The method of claim 31, wherein the step of providing a secondary capacitor further
2 comprises providing a secondary capacitor instantiated within an integrated semiconductor
3 device.

1 35. The method of claim 34, wherein the step of providing a secondary capacitor further
2 comprises providing a secondary capacitor instantiated within the first integrated
3 semiconductor device.